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Listing of Claims

The following listing of claims will replace all prior versions, and listings, of claims in the subject application:

1. (currently amended) A power-supply apparatus for outputting from an output terminal an output voltage Vout corresponding to an input voltage input through an input terminal, via each of one or more switching elements, each element having a control electrode, a voltage input to an input terminal, said power-supply apparatus comprising:

a voltage-generating circuit for generating an output a first voltage Vo proportional to a second voltage between an input end and an output end of said switching element so as to output the generated first voltage Vo, said first voltage Vo being different from said output voltage Vout; and
a control circuit for controlling an operation of said switching element depending on the output first voltage Vo of the voltage-generating circuit;

wherein the control circuit causes the switching element to reduce an output current when the output first voltage Vo of the voltage-generating circuit exceeds a predetermined reference voltage Vs.

2. (currently amended) A power-supply apparatus for outputting from an output terminal an output voltage Vout corresponding to a voltage input through an input terminal, via each of one or more switching elements, each element having a control electrode, a voltage input to an input terminal, said power-supply apparatus comprising:

a voltage-generating circuit for generating an output a first voltage Vo proportional to a

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second voltage between said input terminal and said output terminal so as to output the generated first voltage V_o , said first voltage V_o being different from said output voltage V_{out} ; and
a control circuit for controlling an operation of said switching element depending on the output first voltage V_o of the voltage-generating circuit;

wherein the control circuit causes the switching element to reduce an output current when the output first voltage V_o of the voltage-generating circuit exceeds a predetermined reference voltage V_s .

3. (currently amended) A power-supply apparatus for controlling a voltage input to an input terminal such that the voltage reaches at or below a predetermined clamping voltage so as to output said controlled an output voltage V_{out} from an output terminal, said power-supply apparatus comprising:

one or more switching elements, each having a control electrode that is connected between said input terminal and the output terminal;

a voltage-generating circuit for generating an output a first voltage V_o proportional to a second voltage between an input end and an output end of each of said switching elements so as to output the generated first voltage V_o , said first voltage V_o being different from said output voltage V_{out} ; and

a control circuit for controlling an operation of said switching element depending on the output first voltage V_o of the voltage-generating circuit;

wherein the control circuit causes the switching element to reduce an output current when the output first voltage V_o of the voltage-generating circuit exceeds a predetermined reference

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voltage Vs.

4. (currently amended) A power-supply apparatus for controlling a voltage input to an input terminal such that the voltage reaches at or below a predetermined clamping voltage so as to output ~~said controlled~~ an output voltage Vout from an output terminal, said power-supply apparatus comprising:

one or more switching elements, each having a control electrode that is connected between said input terminal and the output terminal;

a voltage-generating circuit for generating ~~an output~~ a first voltage Vo proportional to a second voltage between said input terminal and said output terminal so as to output the generated first voltage Vo, said first voltage Vo being different from said output voltage Vout; and

a control circuit for controlling an operation of each of said switching elements depending on the ~~output~~ first voltage Vo of the voltage-generating circuit;

wherein the control circuit causes the switching element to reduce an output current when the ~~output~~ first voltage Vo of the voltage-generating circuit exceeds a predetermined reference voltage Vs.

5. (original) The power-supply apparatus as claimed in claim 1, wherein the voltage-generating circuit comprises:

a first MOS transistor having a source connected to said input terminal and a gate connected to said output terminal; and

a second MOS transistor having a source, a drain and a gate that are respectively connected

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to a drain of the first MOS transistor, a ground voltage, and a predetermined voltage V_{bias} ;
and wherein said first MOS transistor and said second MOS transistor, being of the same
type of MOS transistor output from a junction of said first MOS transistor and second MOS
transistor a voltage V_o proportional to a voltage between said input terminal and the output terminal.

6. (original) The power-supply apparatus as claimed in claim 5, wherein said first MOS
transistor and said second MOS transistor have the same electrical characteristics.

7. (original) The power-supply apparatus as claimed in claim 5, wherein each of said first
MOS transistor and said second MOS transistor is a PMOS transistor.

8. (original) The power-supply apparatus as claimed in claim 5, wherein said proportional
voltage V_o is a voltage having added to a predetermined voltage V_{bias} a gate-source voltage of the
second MOS transistor.

9. (original) The power-supply apparatus as claimed in claim 1, wherein said control circuit
comprises:

a reference-voltage generating circuit for generating a predetermined reference voltage V_s
so as to output the generated voltage; and

a comparator circuit for controlling the operation of said switching element such that said
proportional output voltage V_o reaches said reference voltage V_s .

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10. (original) The power-supply apparatus as claimed in claim 1, wherein said switching element, said voltage-generating circuit, and said control circuit are integrated into one integrated circuit.

11. (new) The power-supply apparatus as claimed in claim 1, wherein said first voltage V_o is not directly proportional to said output voltage V_{out} .

12. (new) The power-supply apparatus as claimed in claim 1, wherein as said input voltage input through an input terminal remains constant and output current increases, said output voltage V_{out} output from said output terminal decreases and said first voltage V_o increases.